

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A rotary valve comprising:
a valve body;
a seal structure, carried by said valve body, said seal structure including opposing first and second annular seal cartridge members and a resilient annular seal to form a seating surface wherein the first and second seal cartridge members form a cavity to receive said resilient annular seal such that said annular seal inwardly protrudes from said cavity, said cavity having an elliptical configuration to deform said resilient annular seal to an elliptical shape;
a shaft having a first longitudinal portion disposed externally of said valve, and a second longitudinal portion disposed internally of said valve;
a disc operably connected to said second longitudinal portion and rotatably carried by said valve body, said disc having an elliptical periphery rotatable into and out of sealing engagement with said seating surface.
2. (Canceled)
3. (Canceled)
4. (Previously Presented) The rotary valve of Claim 1 wherein:
said annular seal member has a radially outer peripheral portion clamped between opposing portions of said first and second seal cartridge members.

5. (Currently Amended) The rotary valve of Claim 1 wherein:
~~said cavity has an elliptical configuration, and~~
said annular seal member is of a metal material and is resiliently deformable to said elliptical configuration in response to engagement by said elliptical periphery of said disc.
6. (Original) The rotary valve of Claim 1 wherein:
said valve body has an interior, and
said rotary valve further comprises abutting fixed geometry structures carried by said valve body and said disc and functioning to hold said disc in a precisely centered orientation within said interior of said valve body.
7. (Currently Amended) The rotary valve of Claim 6 wherein:
said disc is rotatable relative to said valve body about an axis, and
said abutting fixed geometry structures include:
first and second guide structures spaced apart along said axis, and extending inwardly into said interior of said valve body, and
a mounting structure carried by said disc and having oppositely facing surfaces spaced apart along said axis and abutting said [[a]] first and second guide structures.
8. (Currently Amended) The rotary valve of Claim 7 wherein:
said valve body has an annular shape with diametrically opposite, parallel flat areas formed on the exterior periphery thereof and spaced [[a]] apart along said axis, said flat areas having openings extending radially therethrough and removably receiving said first and second guide structures, and
said first and second guide structures have enlarged portions abutting said flat areas and preventing further movement of said first and second guide structures into said interior of said valve body.
9. (Original) The rotary valve of Claim 7 further comprising;
a shaft rotatably locked to said disc, said shaft having a longitudinal portion rotatably extending through one of said first and second guide structures.

10. (Original) the rotary valve of Claim 7 wherein one of said first and second guide structures has a portion rotatably coupled to said mounting structure.
11. (Currently Amended) The rotary valve of Claim 1 further comprising:
a shaft having a first longitudinal portion extending inwardly through said valve body and being rotationally locked to said disc, and a second longitudinal portion disposed externally of said valve body and being drivingly rotatable to cause a corresponding rotation of said disc about said axis, and
an actuator support structure secured to the exterior of said valve [[a]] body and being connectable directly to an actuator useable to drivingly rotate said second longitudinal portion of said shaft.
12. (Original) The rotary valve of Claim 11 wherein said actuator support structure is of a one-piece construction and is removably secured to said valve body.
13. (Currently Amended) The rotary valve of Claim 12 wherein:
said valve body has a generally annular configuration with a circumferentially spaced pair of flat areas formed on the external [[a]] periphery of said valve body on opposite sides of said second longitudinal portion of said shaft, and
said one-piece actuator support structure has a generally inverted U-shaped configuration with a spaced pair of leg portions with free end [[a]] portions removably secured to said flat areas of said valve body, and a closed outer end portion to which a valve actuator may be directly secured.

14. (Currently Amended) A rotary valve comprising:
a valve body having an interior;
a seal structure carried by said valve body and defining a seating surface;
a disc carried within said valve body interior for rotation relative to said valve body about an axis and having a periphery rotatable into and out of sealing engagement with said seating surface;
a shaft having a first longitudinal portion rotationally locked to said disc, and a second longitudinal portion disposed externally of said valve body; and
abutting fixed geometry structures carried by said valve body and said disc, including first and second stationary guide structures carried by said valve body and spaced apart along said axis, said guide structures ~~[[and]]~~ extending inwardly into said interior of said valve body, and a mounting structure carried by said disc having oppositely facing surfaces spaced apart along said axis and abutting said first and second stationary guide structures such that said first longitudinal portion of said shaft rotatably extends into ~~through~~ one of said first and second stationary guide structures wherein said stationary guide structures function to hold said disc in a ~~precisely~~ centered orientation within said interior of said valve body.
15. (Canceled)
16. (Previously Presented) The rotary valve of Claim 14 wherein:
said valve body has an annular shape with diametrically opposite, parallel flat areas formed on the exterior periphery thereof and spaced apart along said axis, said flat areas having openings extending radially therethrough and removably receiving said first and second guide structures, and
said first and second guide structures have enlarged portions abutting said flat areas and preventing further movement of said first and second guide structures into said interior of said valve body.
17. (Canceled)

18. (Previously Presented) The rotary valve of Claim 14 wherein one of said first and second guide structures has a portion rotatably coupled to said mounting structure.
19. (Currently Amended) A rotary valve comprising:
a valve body;
a seal structure carried by said valve body and defining a seating [[a]] surface;
a disc rotatably carried by said valve body and having a periphery rotatable into and out of sealing engagement with said seating surface;
a shaft having a first longitudinal portion rotationally locked to said [[a]] disc, and a second longitudinal portion disposed externally of said valve [[a]] body and being drivingly rotatable to cause a corresponding rotation of said disc;
abutting fixed geometry structures carried by said valve body and said disc including first and second guide structures spaced apart along said axis and extending inwardly into said interior of said valve body, and a mounting structure carried by said disc having oppositely facing surfaces spaced apart along said axis and abutting said first and second guide structures such that said first longitudinal portion of said shaft rotatably extends through one of said first and second guide structures wherein said guide structures function to hold said disc in a precisely centered orientation within said interior of said valve body; and
an actuator support structure secured to the exterior of said valve body and being connectable directly to an actuator useable to drivingly rotate said second longitudinal portion of said shaft.
20. (Original) The rotary valve of Claim 19 wherein said actuator support structure is of a one-piece construction.
21. (Original) The rotary valve of Claim 19 wherein said actuator support structure is removably secured to said valve body.

22. (Currently Amended) The rotary valve of Claim 21 wherein:
said valve body has a generally annular configuration with a circumferentially spaced pair of flat areas formed on the external periphery of said valve body on opposite sides of said second longitudinal portion of said shaft, and
said one-piece actuator support structure has a generally inverted U-shaped configuration with a spaced pair of leg portions with free end [[a]] portions removably secured to said flat areas of said valve body, and a closed outer end portion to which a valve actuator may be directly secured.
23. (Withdrawn) A method of constructing a seal cartridge for a rotary valve, said method comprising the steps of:
providing a first seal cartridge member having a side transverse to and circumscribing a first axis;
exerting and maintaining on said first seal cartridge member oppositely directed forces resiliently deforming it along a second axis transverse to said first axis;
forming on said side of the resiliently deformed first seal cartridge member a circularly configured depression circumscribing said first axis;
terminating said forces to permit the resiliently deformed first seal cartridge member to return to its original shape and thereby cause said circularly configured depression to assume an elliptical shape; and
inserting an annular seal member in the elliptically shaped depression.
24. (Withdrawn) A seal cartridge constructed by the method of Claim 23.
25. (Withdrawn) The method of Claim 23 further comprising the steps of:
providing a second seal cartridge member, and
sandwiching said seal member between said first and second seal a cartridge members.
26. (Withdrawn) A seal cartridge constructed by the method of Claim 25.

27. (Withdrawn) The method of Claim 23 wherein:
said annular seal member has a circular shape, and
said inserting step is performed in a manner causing the seal member to be deformed
to an elliptical shape within said depression.

28. (Withdrawn) A seal cartridge constructed by the method of Claim 27.

29. (Withdrawn) The method of Claim 27 wherein said step of inserting an annular seal
member is performed using an annular seal member having an elastomeric body
portion.

30. (Withdrawn) A seal cartridge constructed by the method of Claim 29.

31. (Withdrawn) The method of Claim 23 wherein said step of inserting an annular seal
member is performed using an annular metal seal member.

32. (Withdrawn) A seal cartridge constructed by the method of Claim 31.

33. (New) A rotary valve comprising:
a valve body;
a shaft;
a seal assembly coupled to the valve body, the seal assembly including first and
second retainers housing a resilient annular seal, the resilient annular seal
forming a sealing surface protruding inwardly from the valve body;
a rotatable disc mounted in the valve body and operably coupled to the shaft, the disc
having an elliptical periphery; and
an elliptical cavity formed between the first and second retainers, the elliptical cavity
arranged to deform the resilient annular seal to an elliptical shape.

34. (New) A rotary valve comprising:
- a valve body having a flow path;
 - a seal assembly carried by the valve body and defining a sealing surface;
 - a shaft;
 - a disc carried within the valve body flow path for rotation relative to the valve body about an axis and having a periphery rotatable into and out of sealing engagement with the sealing surface;
 - first and second stationary guides carried by the valve body and abutting opposing portions of the disc, the guides spaced apart along the axis, wherein the guides extend inward into the flow path and further wherein the shaft extends into one of the first and second guides.